Summary Minutes of the
U.S. Environmental Protection Agency (EPA)
Science Advisory Board (SAB)
Environmental Engineering Committee
Public Teleconference
August 16, 2010

Date and Time: Monday, August 16, 2010, 1:00 P.M. – 4:15 P.M. ET

Location: Teleconference Only

Purpose: The purpose of the August 16th teleconference call was for the SAB Environmental Engineering Committee (EEC) to receive briefings on the current status of EPA's vision for innovative, sustainable technologies, and EPA's research activities regarding carbon sequestration and sustainability.

Participants:

EEC: SAB Environmental Engineering Committee (See Roster, Attachment A):

Dr. David A. Dzombak, Chair
Dr. Viney Aneja
Dr. Robin L. Autenrieth
Dr. John P. Connolly
Dr. Herschel Elliott
Dr. Arpad Horvath
Dr. Cindy M. Lee
Dr. James R. Mihelcic
Dr. Horace Moo-Young
Dr. Earthea Nance
Dr. Catherine Peters
Dr. Danny Reible
Dr. Sujoy Roy
Dr. Mark A. Shannon
Dr. Paul Westerhoff
Dr. Thomas M. Young

Dr. Horace Moo-Young and Dr. Mark A. Shannon could not participate on the teleconference call.

EPA SAB Staff: Mr. Edward Hanlon, Designated Federal Officer

EPA Staff:
Ms. Minerva Rojo, EPA Office of the Science Advisor
Mr. Bruce Kobelski, EPA Office of Water
Mr. Sean Porse, EPA Office of Water
Dr. Audrey Levine, EPA Office of Research and Development
Dr. Alan Hecht, EPA Office of Research and Development

Other Participants:	Ms. Donna Perla, EPA ORD
Other Attendees:	A list of members of the public who requested information for calling into the teleconference is provided in Attachment B, Public Attendance.

Materials Available: The agenda and teleconference materials were circulated to the EEC in advance of the teleconference, and were made available to the public via the SAB website (www.epa.gov/sab) on the following SAB EEC August 16, 2010 teleconference webpage: http://yosemite.epa.gov/sab/sabproduct.nsf/a84bfee16cc358ad85256ccd006b0b4b/ad09b42b75d9e36d85257704004882cf!OpenDocument&Date=2010-08-16.

Meeting Summary

The meeting was announced in the Federal Register[1] and proceeded according to the meeting agenda[2]. A summary of the meeting follows.

August 16, 2010

Opening Statements and Welcome

Mr. Ed Hanlon, the Designated Federal Officer (DFO), opened the teleconference, and made a brief opening statement noting that the EEC is a Federal Advisory Committee under the Federal Advisory Committee Act (FACA). He noted the teleconference was open to the public and that Agency-provided briefing materials were posted onto the teleconference website. Mr. Hanlon also noted minutes of the meeting were being taken to summarize discussions and action items in accordance with requirements under FACA. He then turned the teleconference call over to the Chair, Dr. David Dzombak.

Dr. Dzombak welcomed everyone and noted that the SAB was involved in an earlier advisory effort with EPA regarding sustainability, resulting in SAB's June 8, 2008 Advisory Report[3] entitled "SAB Advisory on the Office of Research and Development's Sustainability Research Strategy and the Science and Technology for Sustainability - Multi-year Plan" that was provided on the teleconference website. He noted that EPA had various programs that were assessing or involved in sustainability topics, including EPA's Demonstration and Technology Development Program and EPA's "National Advisory Council for Environmental Policy and Technology (NACEPT)". He then introduced Ms. Minerva Rojo for her presentation and discussion.

EPA's Vision for Innovative, Sustainable Technologies

Ms. Minerva Rojo of EPA's Office of the Science Advisor made a brief opening statement and presented her Powerpoint slides[4] on "EPA's Vision for Innovative, Sustainable Technologies" that were provided on the meeting website. An EEC member asked how EPA's vision translated into specific EPA resources and projects dedicated towards sustainability. Ms. Rojo responded that the NACEPT produced a report that discussed EPA's sustainability efforts. She also noted that Dr. Paul Anastas, Assistant Administrator for the Office of Research and Development (ORD) and Science Advisor to the EPA, was working to provide direction to EPA towards the identification of successful investments and history of successes in addressing environmental problems, and has indicated that sustainability successes would be considered. She also noted that EPA's Science to Achieve Results (STAR) research grants were providing funds towards

external research on sustainability.

An EEC member commented that there was a relatively small market for sustainability technologies, and that industry was having difficulty marketing sustainability in its products. Ms. Rojo responded that EPA's Environmental Technology Verification (ETV) Program helped to verify performance of innovative technologies that have potential to improve environmental protection, and noted that ORD was seeking to bolster the ETV program. She also noted that EPA Regions could bring technology questions to the EPA Science Policy Council.

Another EEC member asked whether EPA was supporting agriculture technology development to address water runoff, air and global warming issues. Ms. Rojo noted that EPA was seeking to identify best technologies and key technology gaps, and that different regions of the country had different technology needs. One EEC member commented that while pollution prevention is a goal for EPA, technology can cause problems to communities or the environment. Another EEC member asked whether ORD was considering lifecycle analysis (LCA) in its sustainability and technology research. Ms. Rojo responded that Dr. Anastas was recognized as a leader for 'green chemistry,' and that he was seeking to incorporate LCA approaches into ORD technology research. She noted that these efforts would help identify potential impacts associated with technology applications, and the degree to which such impacts can or should be addressed. A Panel member commented that EPA could learn about assessing such impacts through its research efforts on nano materials from over the previous eight years.

An EEC member asked whether the framework outlined in Ms. Rojo's presentation addressed air technologies in poor neighborhoods. Ms. Rojo responded that EPA was considering how air monitoring and pollution control technologies are affecting poor communities. She noted that ORD was working to leverage resources in poor communities so that such technologies would be more accessible in these communities. Several members asked her to elaborate on how EPA would leverage resources to encourage enhanced innovation and technology development, particularly in poor communities. One member commented that the U.S. Department of Agriculture was leading a significant interagency effort to address non-point source pollution. Ms. Rojo responded that the White House was encouraging cross-agency efforts, and noted that the President's innovation strategy was launched in September 2009 and was being updated. She noted that the strategy identified areas for interagency coordination and suggestions for leveraging development of innovative technologies.

EPA's Progress on Geologic Sequestration – Rule Development and Research

Mr. Bruce Kobelski and Mr. Sean Porse of EPA's Office of Water then made a brief opening statement and presented their Powerpoint slides[5] on "EPA's Progress on Geologic Sequestration – Rule Development and Research" that were provided on the meeting website. An EEC member noted that monitoring of geologic sequestration activities was a significant challenge, and asked for an update on EPA's current monitoring research related to geologic sequestration. Mr. Kobelski responded that EPA's proposed rule discussed this topic, particularly regarding monitoring requirements associated with leak detection and mechanical integrity. He noted that EPA recently held a public workshop that focused on monitoring related to geologic sequestration, and that EPA was developing geologic sequestration monitoring guidance. Mr. Porse noted that EPA's Office of Water was not conducting geologic sequestration monitoring research.

One EEC member asked whether Lawrence Berkeley National Laboratory (LBNL) was modeling iron, manganese and hydrogen sulfide releases from aquifers, and what were the timeframes associated with this modeling. Mr. Porse noted that although LBNL was not modeling iron, it was modeling ground water quality changes related to the mobilization of various other trace elements associated with geologic sequestration. He also noted that LBNL was assessing what timeframes would be appropriate for the modeling. He commented that while a 50 year injection period was being considered, LBNL may also model a 200 year timeframe if such a timeframe was considered more appropriate.

Another member asked for additional details on EPA's goals to address air and radiation issues associated with geologic sequestration. Mr. Kobelski responded that EPA's goals included helping to alleviate and minimize climate change effects associated with geologic sequestration, but commented that the Safe Drinking Water Act goals focused on protection of underground sources of drinking water. He commented that several offices within EPA were working to lessen the potential impacts that geologic sequestration had on climate change. A member asked whether EPA's geologic sequestration rulemaking would address siting of wells. Mr. Porse responded that well siting was a significant focus within the rulemaking. Another member asked whether EPA or the states would implement the rulemaking. Mr. Porse responded that thirty three states had primacy to implement the geologic sequestration rulemaking, and that EPA had the lead for implementing the program in the remaining states.

EPA Office of Research and Development's Activities regarding Geologic Sequestration Research- Progress Update

Dr. Audrey Levine of EPA's Office of Research and Development then made a brief opening statement and presented her Powerpoint slides[6] on "EPA Office of Research and Development's Activities regarding Geologic Sequestration Research- Progress Update" that were provided on the meeting website. An EEC member asked whether EPA would hold public meetings to discuss the future funding aspects of EPA's STAR research grants program. Dr. Levine responded that the first public meeting on this topic occurred in Pittsburgh in March 2009. EEC members also requested information on current ORD research regarding CO_2 releases, leaks and remediation efforts associated with geologic sequestration. Dr. Levine responded with a brief summary of current EPA activities on these topics.

EPA's Research Activities Associated with Sustainability

Dr. Alan Hecht of EPA's Office of Research and Development then made a brief opening statement and presented his Powerpoint slides[7] on "EPA's Research Activities Associated with Sustainability" that were provided on the meeting website. An EEC member asked whether EPA would provide more funds for sustainability research, as recommended in SAB's June 8, 2008 Advisory Report[3]. Dr. Hecht responded that EPA's FY2012 budget decisions were not final yet, and noted that EPA's proposed budget for sustainability activities was approximately $28 million. Another member asked how EPA allocated resources for sustainability activities. Dr. Hecht responded that EPA's biofuels program had the largest allocation ($5 million), and noted that in January 2011 additional details regarding EPA's budget should be available.

An EEC member asked Dr. Hecht to describe the extent that population affected EPA decisions on sustainability activities, research and funding. Dr. Hecht responded that EPA was considering potential funding increases to sustainability research in urban areas, and also to sustainability activities that affected children and aging citizens. Ms. Donna Perla, EPA ORD, also noted that

as populations grow, there are opportunities for EPA to assess potential environmental and health effects associated with increased biofuel use.

Dr. Dzombak asked if the EEC members had any additional questions. Hearing none, Dr. Dzombak thanked EPA staff who participated on the teleconference and noted that the EEC had received a broad and in-depth view of EPA's ongoing sustainability activities. He stated that EEC and SAB previously engaged EPA on sustainability topics, and was available for future opportunities to provide advice to EPA on topics discussed on the teleconference.

With the meeting business concluded, the Designated Federal Officer Edward Hanlon adjourned the meeting at 4:15 pm ET.

Respectfully Submitted:	Certified as Accurate:
/signed/	*/signed/*
Mr. Edward Hanlon Designated Federal Officer	Dr. David A. Dzombak Chair EPA SAB Environmental Engineering Committee

NOTE AND DISCLAIMER: The minutes of this public teleconference reflect diverse ideas and suggestions offered by EEC members during the course of deliberations within the teleconference. Such ideas, suggestions and deliberations do not necessarily reflect consensus advice from the EEC members.

Materials Cited

The following meeting materials are available on the SAB website: http://www.epa.gov/sab, on the following SAB EEC August 16, 2010 teleconference website: http://yosemite.epa.gov/sab/sabproduct.nsf/a84bfee16cc358ad85256ccd006b0b4b/ad09b42b75d9e36d85257704004882cf!OpenDocument&Date=2010-08-16.

[1] Federal Register Notice Announcing the Teleconference

[2] Agenda for August 16, 2010 Public Teleconference

[3] June 8, 2008 SAB Advisory Report entitled "SAB Advisory on the Office of Research and Development's Sustainability Research Strategy and the Science and Technology for Sustainability Multi-year Plan"

[4] Presentation from Ms. Minerva Rojo, USEPA

[5] Presentation from Mr. Bruce Kobelski and Mr. Sean Porse, USEPA

[6] Presentation from Dr. Audrey Levine, USEPA

[7] Presentation from Dr. Alan Hecht, USEPA

ATTACHMENT A – ROSTER

U.S. Environmental Protection Agency
Science Advisory Board
Hydraulic Fracturing Study Plan Review Panel

CHAIR

Dr. David A. Dzombak, Walter J. Blenko Sr. Professor of Environmental Engineering, Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA

EEC MEMBERS

Dr. Viney Aneja, Professor, Department of Marine, Earth, and Atmospheric Sciences, School of Physical and Mathematical Sciences, North Carolina State University, Raleigh, NC

Dr. Robin L. Autenrieth, Associate Dean for Graduate Programs and Professor, College of Engineering, Texas A&M University, College Station, TX

Dr. John P. Connolly, Senior Technical Advisor and Principal Engineer, Anchor QEA, LLC, Montvale, NJ

Dr. Herschel Elliott, Professor, Department of Agricultural and Biological Engineering, Penn State University, University Park, PA

Dr. Arpad Horvath, Associate Professor, Department of Civil and Environmental Engineering, University of California, Berkeley, CA

Dr. Cindy M. Lee, Professor, Department of Environmental Engineering and Earth Sciences, Clemson University, Anderson, SC

Dr. James R. Mihelcic, Professor, Civil and Environmental Engineering, State of Florida 21st Century World Class Scholar, University of South Florida, Tampa, FL

Dr. Horace Moo-Young, Dean and Professor, College of Engineering, Computer Science, and Technology, California State University, Los Angeles, CA

Dr. Earthea Nance, Assistant Professor of Environmental Planning and Hazard Mitigation, Department of Planning and Urban Studies, University of New Orleans, New Orleans, LA

Dr. Catherine Peters, Associate Professor, Department of Civil and Environmental Engineering, Princeton University, Princeton, NJ

Dr. Danny Reible, Professor, Department of Civil, Architectural and Environmental Engineering, University of Texas, Austin, TX

Dr. Sujoy Roy, Director, Research and Development, Tetra Tech Inc., Lafayette, CA

Dr. Mark A. Shannon, Professor, and Director, the WaterCAMPWS Center, Department of Mechanical Science and Engineering, University of Illinois, Urbana-Champaign, Urbana, IL

Dr. Paul Westerhoff, Professor and Director of the School of Sustainable Engineering and The Built Environment, Arizona State University, Tempe, AZ

Dr. Thomas M. Young, Professor, Department of Civil & Environmental Engineering, University of California-Davis, Davis, CA

SCIENCE ADVISORY BOARD STAFF

Mr. Edward Hanlon, Designated Federal Officer, U.S. Environmental Protection Agency, Washington, DC

ATTACHMENT B – Other Attendees

List of Members of the Public Who Requested Information for Calling into the Public Teleconference of the SAB Environmental Engineering Committee Public Teleconference

August 16, 2010

Name	Affiliation
Adams, Don	Keystone Foods LLC
Jin, Hong	Conoco-Phillips, Inc.
Lane, Cynthia A.	American Water Works Association
Macadam, Laurie A.	University of Illinois
Maddigan, Ruth	Tennessee Valley Authority
Martinson, Erica	Inside EPA
Molar, Peter	PGM Advisors, Inc.
Naus, Wendy A.	Lewis-Burke Associates LLC
Obenshain, Karen R.	Edison Electric Institute
Rizzuto, Pat	BNA, Inc.
Smith, Raymond	USEPA
Turner, Gary	Trinity Rail, Inc.